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The Zinc-Pyrite Deposits of
the Edwards District,
New York



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New York State Defense Council

BULLETIN No. 2

THE ZINC-PYRITE DEPOSITS OF THE EDWARDS DISTRICT, NEW YORK

By DAVID H. NEWLAND

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(PRINTED BY ORDER OF THE COUNCIL)

November, 1917

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J. B. LYON COMPANY, PRINTERS
1917

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HON. CHARLES S. WHITMAN, *Chairman,*
State Defense Council
Albany, New York.

SIR:—The immediate requirements of our industries for pyrite supplies have led to additional surveys of the recently opened zinc field in the Edwards District of St. Lawrence County where these two important minerals, zinc and pyrite, occur in association and, as this report indicates, both in quantity adequate to greatly increase development.

The accompanying report on these mineral supplies is therefore submitted as appropriate to the work of the State Defense Council.

VERY RESPECTFULLY SUBMITTED

JOHN M. CLARKE
State Geologist
Chairman of Geology,
National Research Council

THE ZINC-PYRITE DEPOSITS OF THE EDWARDS DISTRICT, NEW YORK

By David H. Newland

INTRODUCTION

The information hitherto available concerning the Edwards zinc deposits has been rather meager, hardly commensurate with their standing from a commercial viewpoint or with their interest from the geological side.

Mather¹ made cursory note of the occurrence of sphalerite in the Edwards district as far back as 1838, but the deposit to which he refers had been opened for lead rather than zinc, which at that time found little employment. No mention was made of any other occurrence in the district.

In 1906 Newland² published notes on the deposits near the village of Edwards which shortly before had come under prospect and development, and also gave some account of the abandoned workings near Sylvia Lake. A more extended description by the same writer³ appeared in the "Engineering & Mining Journal" of that year.

In 1913 McDonald⁴ briefly described the Edwards mines then developed to a point which warranted the inauguration of active production. Operations were delayed for two years, however, by the problems encountered in the milling of the ores, complicated perhaps by the policy pursued by the company of saving the pyrite as well as the blende.

The geology of the ores was discussed for the first time in a contribution by Newland⁵ to "Economic Geology," wherein also was given some account of the physical and chemical characteristics of

¹ Geology of New York: Report on Second District, Assembly Doc. 1838, No. 200, p. 213.

² The Mining and Quarry Industry of New York state. N. Y. State Mus. Bull. 102, 1906, pp. 157-159.

³ Engineering and Mining Journal, Vol. 81, p. 1094-5, 1906.

⁴ Idem Vol. 95, p. 363, 1913.

⁵ Economic Geology, Vol. XI, No. 7, Oct-Nov. 1916.

the ores and their probable origin. The bodies were recognized as replacements of the Precambrian limestones in which they occur and as having been formed at considerable depths following the metamorphic process which led to the silication of the limestones.

The present contribution deals more particularly with the geology and economic development of the deposits. In the study of the origin of the ores — which is no less of interest and importance in view of the rather unusual conditions of their occurrence — the cooperation of C. H. Smyth, Jr., had been enlisted and a separate chapter had been nearly completed by him for inclusion with the report. It is regretted that owing to the exigencies of time and space the publication of this part must be postponed to a later date.

In the study of the general geology of the district the assistance of Dr. Cushing, who for the last two seasons has been engaged in the mapping of the Gouverneur sheet in which Edwards lies, has been of material advantage. It is unfortunate that the areal map can not be referred to in connection with the descriptions; although nearly completed, so far as field work is concerned, its publication can hardly be expected before another year or two.

Acknowledgment is due to many of those interested in the mining industry of northern New York for information and other aid rendered in the work. To T. M. Williams and J. H. McLear the debt is particularly important. In visits to the mines of the Northern Ore Company, many courtesies have been extended by the former and present members of the company's staff, including A. J. Moore, Justice Grugan, Cecil Pocock, G. S. Patterson and W. D. Blackmer.

HISTORICAL

The first shipments of zinc ore and pyrite from Edwards in a commercial way were made in the spring of 1915, with the beginning of regular mining operations by the Northern Ore Company on its property just outside of Edwards village. The record of the discovery and development of the deposits, however, covers a considerable period anterior to that date.

The earliest mention of zinc in connection with the Sylvia Lake-Edwards limestone belt that the writer has been able to find is contained in one of the preliminary reports of Ebenezer Emmons¹ relative to the progress of his survey of the Second District of New

¹ Geology of New York: Report on Second District, Assembly Doc. 1838, No. 200, p. 213.

York. He refers to the occurrence of zinc and lead on the Balmat property in the following words:

"In the town of Fowler, a remarkable vein of the sulphurets of zinc, lead and iron, in about equal proportions, occur on the farm of Mr. Belmont.² The direction of the vein is n. n. e. and s. s. w. and the width about eight inches, but not well defined. These sulphurets traverse a bed of serpentine 40 to 50 feet wide. The occurrence of zinc intermixed with lead, is not favorable to the reduction of the latter."

In a further paragraph of the same report Emmons expresses the opinion that mining on the Balmat vein will not prove profitable. It is apparent from the wording that the deposit had already engaged attention from prospectors, and no doubt some of the development work evidenced by the shaft and tunnel openings that exist at present traces back to this early period. The purpose of the operations evidently was to prospect for lead, rather than zinc which at that time would hardly have been considered an element of value in the ore. It is likely that other deposits in the district were uncovered at about the same time.

The Streeter property which adjoins the Balmat on the north, across the road, contains prospects and dumps situated along a band of ore that bear evidence of having been made years ago and some of them may be contemporary with the early operations already noted. There are no further records relating to the district, however, for the interval of about 75 years preceding the present developments.

In 1903 T. M. Williams who was then engaged in mining work near Gouverneur had his attention called to the uncovering of zinc ore on the Todd farm, a part of the properties now under operation. It appears that the limestone ridge in which the ore occurs had been cut into for the purpose of quarrying road material and the edge of the ore zone thus exposed. Mr. Williams visited the place and recognized the possible importance of the discovery. The property, as well as the adjoining Brown tract was taken over, under lease or purchase, by Mr. Williams in association with the Northern Ore Company who then began systematic prospecting work which continued for a year or more. In 1905 operations were suspended on account of legal entanglements and were not again resumed until some five years later. A period of experiment

² The name is properly spelled *Balmat*.